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The Influence of Hints On The Formation and Retention of Concepts

Phyllis Ellis
Fort Hays Kansas State College

THE INFLUENCE OF HINTS ON THE FORMATION AND RETENTION OF CONCEPTS

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Phyllis M. Ellis, A. B.
Fort Hays Kansas State College

Date July 19, 1951 Approved H. B. Reed
Major Professor

Ralph G. Corder
Chairman Graduate Council

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INTRODUCTION

Much of the behavior of man which distinguishes him from other animals depends upon the ability to form concepts. It is involved in learning throughout man's entire lifetime. Yet, scientific research in the field of thinking, of which concept formation is an important part, has been limited. Before discussing the better known studies which have been concerned with this subject, let us consider for a moment the place of concept formation in thought processes. Why are we interested in how concepts are formed?

According to Rapaport (8), when the connection of an idea through its "similarity to", dissimilarity from", or "belonging with" other ideas is seen concept formation has taken place. The naming or identifying of anything becomes conceptualization.

> What is given in the inductive problem consists of specimens, and the result to be attained is a definition, or at least a working knowledge, of the class represented by the given specimens. . . . A problem of induction or concept formation calls for the mastery of more than a single concrete thing or situation. The O /individual/ must develop an effective response to a class of objects and a different response to objects not belonging to this class.

Johnson (6) explains how generalization and differentiation apply in the learning of concepts.

> This learning of concepts is a special case of learning by organization. The learner combines or organizes the effects of stimulation by the different objects. Because it is the common or general characteristics of the objects which are organized to form the concept, the term generalization is also used for this way of learning. Differentiation refers to the other side of the process, the elimination from the concept of "apple" of balls, oranges, and balloons.

From the above it becomes apparent why it is important to evaluate the various factors which influence the formation of concepts. From childhood through old age new ideas are acquired through this process.

The first scientific approach to the investigation of mental activities was made by Ebbinghaus (1) in his famous experiment on memory. This provided the incentive for many other studies of a similar nature because the study of thought processes had been removed from the realm of philosophy to science.

Fisher's (2) experiment was largely the introspective reports of her subject's sensations, images, and feelings during concept formation.

Hull (4) was interested in the most efficient methods of learning concepts. He also studied concept formation in psychotics and discovered that progress was only about one-sixth as rapid as in normals.

In attempting to set up standardized concepts of known difficulty Heidbreder (3) found that certain classes of concepts were formed more rapidly than others. Concepts of concrete objects were formed most quickly, concepts of spatial forms next, and number concepts were most slowly learned.

The reader may find a rather complete review of literature on the experimental investigation of concepts in an article by Johnson (5) in which he summarizes the most important investigations. For the purpose of this paper only a few of the experiments will be discussed in order to present the results of related studies.

The influence of set or directions is another factor of interest in the study of concept formation and retention, although only a few studies of this have been made. The use of hints gives increased specificity to the set.

The influence of both verbal and non-verbal hints was investigated by Maier (7). Two strings were suspended from the ceiling far enough apart that the subject could not reach both at the same time. The problem was that of tying the two strings together. There were a number of objects present in the room and actually there were many possible solutions. Maier, however, was interested in only one solution. The subject was to tie a weight (pliers) to a string so that it would act like a pendulum. This would allow the subject to hold the non-weighted string and catch the other as it reached the top of an arc in its swing. If the subject solved the problem in another way he was instructed to keep working for other solutions.

The subjects were first allowed 10 minutes in which to discover the correct solution and then, if they had been unsuccessful, two hints were given: (1) the experimenter brushed across one of the strings to make it swing, and (2) he handed the subject the pliers, telling him that with the pliers and nothing else the solution could be obtained.

Without hints 39 per cent obtained the correct solution in the 10 minutes allowed; after the hints a further 30 per cent solved the problem correctly, and 23 per cent failed to find the solution. These results indicate that specificity of set aided solution for 30 per cent

of the subjects.

Dr. H. B. Reed, under whose guidance this experiment was conducted, has investigated a number of factors influencing the formation and retention of concepts. These include an experiment (10) on the influence of the length of the series in which he found that the amount of effort required to learn a series of 60 was less than twice as great as that of a series of 24.

Reed (11) next investigated the influence of the complexity of the stimuli. The results showed that the amount of effort required to form concepts varies directly with the complexity of the stimuli, the number of correct concepts decreased rapidly as the complexity of the stimuli increased, and as the complexity of the stimuli increase illogical concepts increase.

A later experiment by Reed (12) investigated the formation and retention of concepts as a factor of the form of presentation. Concepts were presented in serial and simultaneous form.

The experiment by Reed (9) which is of the most interest to the present study was one which investigated the influence of set on the formation and retention of concepts. The subjects were presented with a series of 42 cards. On the side of the card viewed by the subject four familiar English words were printed, one of which belonged to the category symbolized by a nonsense syllable printed on the back of the card. The cards were presented at the rate of one every seven seconds. If the subject failed to name the card correctly, or failed to respond, the experimenter pronounced the syllable. If the subject

named it correctly the experimenter said "Right". One showing of the entire series of cards constituted a trial, and one completely errorless trial was required. The subjects were divided into two approximately equal ability groups, named Group 4 and Group 5. The directions for both groups were the same with the exception that Group 5 was told to learn the name of each card, while Group 4 was instructed to learn the name of each card and what it stands for. Therefore, the only difference was that Group 4 had a specific set to learn the meanings of the cards or in other words to learn the concepts. The results show a decided advantage for that group. The advantage was still noticeable for retention and relearning although to a lesser degree.

These results suggest that the use of hints to increase the specificity of the set may be valuable, and this furnished the basis for this study.

This experiment duplicated the procedure and material presented to Reed's Group 4, with the exception that after the second trial the subjects were given a hint. The present experimental group of forty college students divided into two groups of twenty will be known hereafter as Groups 16 and 17. After the second trial Group 16 was given a specific hint, while subjects in Group 17 were given a non-specific hint. Approximately equal ability groups were formed by means of a Henmon-Nelson Test of Mental Ability (College Students). The average score for Groups 16 and 17 were 43.15 and 42.80 respectively. The difference is not significant.

PROBLEM

The general problem of this experiment was to investigate the influence of hints on the formation and retention of concepts. The specific problems were the following:

1. How do specific and non-specific hints influence the amount of effort required to learn and relearn concepts?
2. What is the relation of specific and non-specific hints to the percentage of consistent concepts learned and retained?
3. Is the difference in rate of learning inconsistent and consistent concepts significantly greater in the specific group than the non-specific group?
4. What are the individual differences in the procedure for forming new concepts.

MATERIALS

The materials used in this experiment consisted of six nonsense syllables, each of which represented a certain familiar logical category, 168 familiar English words grouped into 42 sets of four words each, and 42 cards, $3\frac{1}{2}$ by 5 inches. On the face of each card was printed a set of four words, one of which belonged to a category symbolized by the syllable which was printed on the back of the card. To avoid position habits the key word occurred in irregular positions; to make memorization difficult the order of the syllable was different in every six cards and the same syllable never occurred on two adjacent cards. A metronome was used to tick second intervals.

EXPERIMENTAL PROCEDURE

The experimenter (E) read the following instructions to each subject (S):

> This is an experiment in learning concepts. A concept, as you know, is a word or idea that stands for any one of a group of things or ideas. (Thus the words chair, bird, or stone stand for any one of a group of chairs, birds, or stones.) I am going to show you a number of cards one at a time. Each of these cards will be named by a nonsense syllable such as Jik, Bif, or Hex, and each nonsense syllable is a concept. Look carefully at all the words on the cards and try to learn, as soon as you can, the name of each card and what it stands for. At first you will not know the names of any of them, and I shall have to prompt you. I shall always prompt you when you fail to tell me the name of a card within three seconds after it has been shown. When I have given the name of a card, repeat it aloud after me so that I can be sure you understand it. Your work will be finished as soon as you can name each card without any help. Now will you answer these questions:
>
> 1. This is an experiment in what?
> 2. What is a concept?
> 3. In this experiment is each nonsense syllable a concept?
> 4. What are you to do?

The E then presented the cards from behind a screen to the view of the S at the rate of one card every seven seconds. On the third second the E pronounced the nonsense syllable on the card, and on the fifth second he withdrew the card in view and prepared to present the next card. The cards were always presented in a constant order. If the S named a card correctly, the E said, "Right". If the S failed to name the card or named it incorrectly, the E prompted him. The subject was encouraged and informed of his progress as the experiment proceeded. The complete showing of the 42 cards was one trial or repetition. A trial without prompting was the criterion for learning. A short rest interval of 15 seconds between trials was given except

when introspective reports were recorded, when the time was extended to the necessary length. The introspective reports on the process of learning or concept formation were taken after every second trial, and oftener if the S indicated that he wished to express his method of attack. To secure these reports the E asked, "What suggests Kun to you?" with the same question asked for each of the nonsense syllables. At the end of the last trial, the question was changed to "What is Kun?" If the answers were not clear the E asked "In what way have you gone about learning the names of the cards?" The E also might ask the S to name the key words on each card if there was any doubt as to whether the S had formed a correct concept.

A concept was consistent or correct when the concept was so formed that it fitted all the words belonging to the logical group for which it was a symbol. This offered a certain amount of freedom in the concepts formed. For the concept represented by Vor one S gave "words of affection," while another "emotional words or something to do with love". These concepts were consistent. In some cases however, the concept formed was too general as "living things" for Kun or "food" for Bep, and the S was unable to tell the difference between some of the cards. In addition, some of the Ss simply associated the syllable with the first word on the card, and made no effort to find words that fell into a group. The concepts which resulted in these cases were inconsistent.

Each test was given individually and only those subjects who completed the series at one sitting were used for the quantitative

results. The E recorded the following data on forms prepared for the purpose: the number of promptings required to respond correctly to each card; the number of trials required to reach the first errorless trial; the total time required to learn or relearn the series, and the observations made by the S. In computing the results in this experiment the mean number of promptings per concept was used as a measure of learning and relearning effort.

After approximately a week the Ss were tested for retention. The cards were shown at the same rate and in the same order as in the learning period. This was continued until the correct response was made to the series of 42 cards without error. Because three subjects in Group 16 and one subject in Group 17 were unable to return for retention tests after the proper interval the results of the retention tests for those subjects have not been included in the calculation of results.

Below is presented the name and content of each card used in the experiment. The correct concept for each group has been added in parenthesis:

	Name	Content	
1.	Kun	horn leaf monkey debt	(animals)
2.	Vor	brook leave claim precious	(terms of endearment)
3.	Yem	roses suit juice plum	(flowers)
4.	Bep	club picnic reaches beet	(vegetables)
5.	Dax	answer highest airplane red	(colors)
6.	Jik	pine hear speak chalk	(trees)
7.	Yem	fight tablet chair poppy	
8.	Kun	fame ought tiger saucer	
9.	Bep	potato careful pasture raised	
10.	Jik	across oak floor sorry	

11.	Vor	lover borrow flower point
12.	Dax	anywhere green aloud apple
13.	Vor	honey idle breaking bread
14.	Jik	pencil cedar just crossing
15.	Yem	doesn't spread dandelion stuck
16.	Bep	crawl turnip pleasant closet
17.	Dax	board beast blue butter
18.	Kun	line people elephant sound
19.	Vor	broken darling load pearl
20.	Kun	uncle fried pear sheep
21.	Yem	enough hitch lily tangle
22.	Jik	break knee maple eyes
23.	Dax	building purple believed plus
24.	Bep	call o'clock carries spinach
25.	Yem	sunflower ditch shade stir
26.	Jik	bid know file walnut
27.	Vor	barrel sweetheart hurried noisy
28.	Bep	coffee pilot clay carrot
29.	Dax	bunch brown borrow prince
30.	Kun	deer sail crowd string
31.	Bep	berry help tomato calm
32.	Dax	made arrow lean yellow
33.	Jik	because sugar elm meat
34.	Kun	horse circle paid scholar
35.	Yem	toward leader pansy treated
36.	Vor	banana haste dear minutes
37.	Dax	pink beat ankle knives
38.	Yem	laden daisy disgust cranky
39.	Vor	believe cigar owe love
40.	Kun	carrying died cow rule
41.	Bep	urn cabbage crown swept
42.	Jik	air hour cheat cottonwood

After trial two one of the following hints was given to all Ss.

Specific hint read to members of Group 16:

I am going to give you a hint. You remember Kun is one of the nonsense syllables. Now on every Kun card there is one word which belongs to a certain class. That class is animal. Now look for the class names belonging to the other syllables.

Non-specific hint read to members of Group 17.

I am going to give you a hint. You remember Kun is one of the nonsense syllables. On every Kun card there is one word which belongs to a certain class. I want you to find out what that class is.

It should be noted here that the essential difference between the two hints was that Group 16 was given a more specific method of procedure for solving the problem.

RESULTS

I.

The results of the influence of hints on the amount of effort required to learn and relearn concepts are recorded in Table I.

TABLE I

Mean number of promptings per concept in relation to specific hint (Group 16) and non-specific hint (Group 17)

	LEARNING		RELEARNING	
	Mean	S.D.	Mean	S.D.
Group 16	27.32	6.07	1.23	.88
Group 17	31.87	9.68	2.22	2.03
Obtained Difference	4.55		.99	
S.E. Difference	2.55		.51	
C.R.	1.79		1.94	
Sig. at %	.10		.10	

The results show some advantage in the amount of effort required to learn and relearn concepts when the subject was given a specific hint. The mean number of promptings for the specific hint group was 27.32, while that of the non-specific hint group was 31.87. The critical ratio was 1.79 which is significant at the 10 percent level. This is not a high degree of statistical significance, but it shows a tendency which may prove useful as a guide for reduction of effort.

The advantage of increased specificity was still present for relearning. The critical ratio between Groups 16 and 17 in the number of promptings required to relearn the concepts was 1.94 which is also significant at the 10 percent level.

II.

The results of the influence of hints on the percentage of consistent concepts learned and retained are recorded in Table II.

TABLE II

Percent of consistent concepts learned and retained in relation to specific hint (Group 16) and non-specific hint (Group 17)

	LEARNING		RELEARNING	
	%	σ %	%	σ %
Group 16	92	6.06	92	6.57
Group 17	84	8.13	89	7.17
Obtained Difference	8		3	
S.E. Difference	10.14		9.72	
C.R.	.79		.31	
Sig. at %	Not Sig.		Not Sig.	

Ninety-two percent consistent or correct concepts were formed by the subjects of the specific hint group, while subjects given the non-specific hint formed 84 percent. The 8 percent difference is not statistically significant, but it is of interest when the results of Table I are considered. Although Group 17 received more promptings per concept than Group 16 they did not form as many or more consistent concepts.

III.

The results of the influence of hints on the rate of learning consistent and inconsistent concepts are recorded in Table IIIa and Table IIIb.

TABLE IIIa

Mean number of promptings for consistent and inconsistent concepts in relation to specific hint (Group 16)

	LEARNING		RELEARNING	
	Mean	S.D.	Mean	S.D.
Group 16 Consistent	27.03	5.82	1.12	1.01
Inconsistent	31.03	10.68	1.70	1.53
Obtained Difference	4.00		.58	
S.E. Difference	4.55		.65	
C.R.	.92		.89	
Sig. at %	Not Sig.		Not Sig.	

TABLE IIIb

Mean number of promptings for consistent and inconsistent concepts in relation to non-specific hint (Group 17)

	LEARNING		RELEARNING	
	Mean	S.D.	Mean	S.D.
Group 17 Consistent	30.66	8.05	1.76	1.07
Inconsistent	32.27	12.49	2.78	3.79
Obtained Difference	1.61		1.02	
S.E. Difference	4.36		1.36	
C.R.	.37		.75	
Sig. at %	Not Sig.		Not Sig.	

A slight advantage in the number of promptings required to learn and relearn consistent concepts as compared with the number of promptings required to learn and relearn inconsistent concepts was found in both the specific hint group and the non-specific hint group. However, the difference was not statistically significant, and therefore no comparison of a difference in rate of learning could be made between the two groups.

It was interesting to note that whether a concept was consistent or not no increase in effort seemed necessary to relearn the concepts.

IV.

Individual differences in the procedure of forming new concepts are apparent throughout the experimental situation, and were particularly interesting since all the subjects were given a definition and an illustration of a concept, and asked if he understood what he was to do. The only way in which the experimental atmosphere varied was in the type of hint which was given.

1. Differences in the number of promptings. One of the first indications of individual differences was the wide variation in the number of promptings required to complete the task. One subject required 348 promptings before he was able to respond correctly to the names of all the cards. Another subject in the same hint group required only 2 promptings. Although wide variations were present in both groups, they were not as great in the specific hint group where the highest and lowest number of promptings were 258 and 94 respectively.

On the retention test the same variation was again present. Two subjects required only two promptings to relearn the concepts, but one subject was prompted 57 times before relearning the names of the cards correctly.

The experimenter was surprised when S 4 asked during the first trial if Dax pertained to colors. It is unusual for a concept to be formed so quickly, yet this subject was above the average in number of promptings required to learn the entire set of cards. In this case the insight into the formation of one concept did not seem to carry over into the others.

2. Inconsistent concepts. Sixteen of the forty subjects failed to form six consistent concepts. Of particular interest to the writer was the fact that nine of the sixteen formed five consistent or correct concepts, but seemed unable to see a similar relationship in the sixth concept.

One subject was unable to form any consistent concepts during the original learning period. She learned the names of the cards by rote memory. After several trials she mentioned correct associations such as "Vor cards all have something like sweetheart or honey on them", but then she seemed unable to use these words to form a concept. At the end of the learning period she still named those words as key words on Vor but also added "banana" and "owe."

Rigidity or lack of adaptability was shown by some subjects who formed an inconsistent concept early in the learning period, and although they had difficulty with that concept each trial, they did

not try to change it.

3. Origin of ideas. Although the subjects had to answer questions correctly about the definition of a concept and what they were to do before the experiment was continued, many subjects disregarded this. A frequent method of attack when the cards were first presented was to look only at the first word, or sometimes, to look for a word in the group which started with the same letter as the nonsense syllable or which had a similar sound.

One subject used an association of similarity in sound to remember Jik. She said, "Jik makes me think of Shick, and there is a mechanical pencil named Shick, isn't there?" Pencil was a word on one of the Jik cards.

The association of a nonsense syllable with a sound, however, proved helpful in some cases. S 28 said, "I am associating Kun with cow because of the sound." Cow is one of the key words in the Kun series, and shortly after making the above observation the subject said, "All the Kun cards have an animal on them. I noticed that because cow stood out on one card."

S 13 was a good example of those subjects who remembered the instructions and realized that each nonsense syllable must have something in common. After the second trial he said, "I am trying to associate one word on each card with the nonsense syllable, and I've found there are certain groups such as animals and vegetables." Throughout the experiment subjects who used this method of approach were able to form concepts more accurately and quickly.

4. Reactions to the testing situation. The reactions of the subjects to the testing situation were noted in some detail because of the associated study which was being done on the possible correlation of personality factors with the ability to form concepts.

A number of subjects stated that they did not work well when they were being timed. Some of these subjects showed bodily signs of nervousness such as random movements, sitting on the edge of the chair, and talking aloud when trying to form concepts.

S 12 seemed disturbed by the use of nonsense syllables. He insisted that he could not remember the syllables. He mispronounced the nonsense syllables even when repeating them after the experimenter. Since this experiment was not to test pronunciation but concept formation the subject was given credit whenever the syllables could be recognized. When this subject missed a name he became upset and tried to correct it by repeating other syllables at random.

In comparison S 3 worked methodically. He seemed undisturbed by the limited time, and he did not become upset when he missed the name of a card and had to repeat the series.

The differences in number of promptings may be due to differences in ability, method of approach to the problem, blocking, or fatigue. Ability is important but a very intelligent subject may require a large number of promptings if his method is faulty.

Inconsistent concepts, too, are due to a faulty method of attack or sometimes to the subject's rigidity. If the subject realizes the concept is poor, yet seems unable to change it this lack of

adaptability will result in an inconsistent concept.

The origin of ideas of a concept may stem from a number of sources such as similarity of sound, similarity of spelling, or the more accurate and efficient method of discovering a common factor. An observation may be made from the foregoing study of individual differences which will apply to other learning situations as aptly as to this experiment. That is that individual differences will appear because of such factors as ability, method of approach, or personality factors. Although common procedures form the framework for the group's reactions, we still should expect individual differences within any group.

SUMMARY

The general problem of this experiment was to study the influence of hints on the formation and retention of concepts. The material used consisted of 42 cards, each of which had four unrelated English words on the face and a nonsense syllable on the reverse side. There were six nonsense syllables, each of which represented a logical category to which one of the words on the face of the card belonged. The subject's task was to learn the name of the card and what it stood for. His task was completed when he reached his first errorless trial in naming the entire set of cards.

The procedure involved the presentation of the cards at the rate of one card every seven seconds. If the subject failed to respond or responded incorrectly within three seconds the experimenter

prompted him with the correct response. After the second trial the subjects were given a hint. An individual record was kept of the number of promptings required to respond correctly to each card, the number of trials, the total time required, and observations of the subject on his process of learning.

This experimental group of forty college students was divided on the basis of an intelligence test into two equal groups of twenty each. The material and procedure were the same in the two groups with the exception that one group (Group 16) was given a specific hint, and the other (Group 17) was given a non-specific hint. The results were as follows:

1. The amount of effort required to learn and relearn concepts was less in the specific hint group than in the non-specific hint group.

2. More consistent concepts were formed by the specific than the non-specific hint group. This difference was not valid statistically, but in view of the results given above it presents a problem for further study.

3. Less effort was required to learn consistent concepts in the specific hint group than in the non-specific group. This was also true of inconsistent concepts. However, neither these differences nor those between the amount of effort required to form consistent or inconsistent concepts within one group were statistically significant. Therefore, no comparison of a difference in rate of learning was made between the specific and non-specific hint groups. Although there was a wide variation in both groups as to the number of promptings required to

learn and relearn the correct responses to the cards, the variation was not as great in the specific hint group.

5. There was considerable variation also in the number of consistent concepts formed. In the origin of ideas the subjects who formed concepts most accurately and quickly were those who utilized the instructions and hints and looked for something in common in each nonsense syllable group.

6. In general, efficiency increased and amount of effort decreased when the specific hint was used.

LIMITATIONS AND FURTHER RESEARCH

In view of the fact that few significant results were obtained, the limitations of this experiment should be considered.

In most concept formation experiments the subject's scores on an intelligence test have been used to equate groups upon their ability to form concepts. It is one of the best known methods now, but only yields a correlation of about .40 with concept formation. A new method for equating groups for the learning and retention of concepts, therefore, is highly desirable.

In this experiment the hint, either specific or non-specific, was not given until after the second trial. By that time a number of the subjects had already gained enough insight into the experiment that the hint did not add any information. It may be that the results of this experiment were rendered less significant because of this. Further research on the value of hints should take this temporal placement into consideration.

Since only forty students were used in this experiment it is wise to attempt to point out only general tendencies. Results of this experiment cannot be considered as indicative of the general population as only college students were represented.

APPLICATIONS

Any knowledge which can be gained on factors influencing concept formation and retention is valuable in as much as the individual must form concepts in order to learn. From this it becomes apparent that results of experiments in this field have a practical application in a classroom. The tendency indicated in this experiment was that the amount of effort decreases as the specificity of instruction in problem solving increases.

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TABLE IV a

RAW DATE - Group 16

Subject	Henmon-Nelson Score	Learning Date	Total Promptings	Consistent Concepts	Relearning Date	Total Promptings
No. 1	45	3-17-51	157	5	4- 2-51 (Delete)	29
2	41	4- 2-51	146	6	4- 9-51	4
3	36	3-21-51	213	4	3-28-51	8
4	41	4- 4-51	220	4	4-11-51	6
5	57	3-28-51	184	6	4- 4-51	5
6	42	3-21-51	160	6	4- 2-51 (Delete)	15
7	51	4- 4-51	140	5	4-11-51	3
8	28	3-19-51	146	6	3-28-51	6
9	54	3-28-51	180	5	4- 4-51	10
10	46	3-20-51	137	6	3-29-51	3
11	42	3-27-51	172	6	4- 4-51	6
12	34	3-21-51	258	6	4- 4-51 (Delete)	12
13	47	4-23-51	169	6	4-30-51	15
14	47	5- 2-51	143	6	5- 9-51	2
15	46	4- 6-51	94	6	4-14-51	7
16	29	3-30-51	185	6	4- 9-51	21
17	43	4- 3-51	160	6	4-10-51	2
18	53	3-20-51	132	3	3-27-51	5
19	40	4- 6-51	152	6	4-16-51	8
20	41	3-17-51	130	6	3-22-51	14

TABLE IV b

RAW DATA - Group 17

Subject	Henmon-Nelson Score	Learning Date	Consistent Concepts	Total Promptings	Relearning Date	Total Promptings
No. 21	42	3-19-51	5	283	3-27-51	12
22	54	3-28-51	6	147	4- 4-51	3
23	36	4-14-51	5	162	4-23-51	12
24	53	4- 4-51	6	182	4-11-51	11
25	45	4-25-51	5	72	5- 2-51	3
26	49	3-30-51	5	154	4- 6-51	7
27	37	3-20-51	5	168	3-28-51	18
28	53	4- 3-51	6	194	4-10-51	3
29	27	4-23-51	4	155	5-10-51 (Delete)	17
30	48	3-16-51	6	188	3-21-51	9
31	57	3-28-51	6	264	4- 2-51	7
32	42	4- 2-51	5	190	4- 9-51	14
33	35	3-31-51	4	180	4- 6-51	9
34	41	4- 9-51	3	214	4-16-51	15
35	40	4- 4-51	6	223	4-11-51	11
36	28	4-18-51	0	348	4-25-51	57
37	43	3-19-51	6	165	3-28-51	28
38	46	4- 6-51	6	195	4-14-51	16
39	51	4- 6-51	6	206	4-11-51	4
40	29	4-25-51	6	134	5- 2-51	14